

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

FOR

FIREARM BREECH SAFETY LOCK

BY

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FIREARM BREECH SAFETY LOCK

BACKGROUND OF THE INVENTION

Technical Field

The present invention relates generally to a firearm breech safety device to prevent unauthorized or accidental discharge of he
5 firearm.

BACKGROUND OF THE INVENTION

Firearm safety devices are known and by way of example reference maybe had to united States Patent 4,224,753 granted
10 September 30, 1980 to T.F.Bielman. This patent is closely related to the present invention and is the most pertinent reference known to the applicant. The substance of the foregoing patent is incorporated herein by reference thereto.

The Bielman patent teaches a safety device which includes a
15 dummy cartridge that fits into the chamber of the barrel and is connected to a barrel end plug or muzzle cap by a threaded elongate rod. A hand tool is used to un-thread the rod from the dummy cartridge permitting removal of the muzzle cap and rod. Nothing is provided by the patentee that prevents the dummy cartridge from
20 rotating in the chamber when the hand tool is used to un-thread the rod and in some instances this can make the task difficult and perhaps even impossible.

The dummy cartridge of the patented safety device is constructed from an empty shell that has an insert connected to the rear wall of the shell by a shaft anchored in the rear wall. The construction is complicated and therefore relatively expensive to produce as compared to the instant invention. Furthermore no means is provided to protect the gun chamber from the insert and damage thereto that possibly can occur through repeated use of the same.

SUMMARY OF INVENTION

In keeping with the foregoing there is provided in accordance with the present invention there is provided in accordance with the present invention a gun safety device for preventing unauthorized or accidental use of the same comprising a solid body of material sized to fit into the cartridge chamber of a selected gun. The solid body has an outwardly directed flange at one end thereof for engaging an end wall surrounding entry into the cartridge chamber and a threaded bore extending inwardly a selected distance from and end of the body opposite the one end. Means on the body projects outwardly therefrom frictionally to engage a wall of the cartridge chamber surrounding the solid body. A muzzle plug insertable into an open outer end of the barrel of the gun has an outwardly directed flange at one end that is engagable with an outer end of the gun barrel. An elongate rod threaded along at least a portion at one end for threading into the threaded bore in the solid body and includes means connecting the opposite end of the rod to the

muzzle plug.

A principal object of the present invention is to provide an improved safety device by having means on the dummy cartridge that resists rotation of the dummy device in the chamber when turning 5 the threaded rod during installing or uninstalling the device.

A further object is to provide a dummy cartridge that has a cushioned contact with the walls of the magazine.

A still further object is to provide a firearm safety device 10 with a simple one piece dummy cartridge that has a threaded bore extending therein from one end thereof.

A still further object is to provide a firearm safety device with a simple one piece dummy cartridge with a threaded bore in one 15 end thereof and an enlarged entry gradually decreasing in size in direction toward the threaded portion and thereby providing means to direct and guide the end of the elongate threaded rod toward the threads.

Other objects, features, and advantages of the invention will be apparent with the following detailed description taken in 20 conjunction with the accompanying drawings showing a preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the present invention will be had upon reference to the following description in conjunction with the accompanying drawings in which like numerals refer to like parts throughout the several views and wherein:

Figure 1 is a partial sectional view of a hand gun having a safety device provided in accordance with the present invention installed therein;

Figure 2 is an exploded view illustrating the components of the safety device including a key for installing and un-installing the device;

Figure 3 is an oblique view of the muzzle plug end portion of the safety device;

Figure 4 is an oblique view of an end portion of a dummy cartridge having a concave entry area leading into the threaded bore;

Figure 5 is an oblique view of a dummy cartridge wherein the o-ring shown in figure 2 is replaced by pins of resilient material seated in recesses and radiating outwardly from the outer surface of the dummy cartridge ; and

Figure 6 is a sectional view taken essentially along line 6 - 6 of figure 3.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, Figure 1 illustrates a partial side 5 sectional view of a hand gun 10 having a safety device of the present invention installed therein to prevent unauthorized use or accidental discharge of the gun. The safety device consists of a dummy cartridge 20, a muzzle end plug 30, and an elongate threaded rod 40 inter-connecting the two. A key 5 as best shown in Figure 10 2 is provided for installing and un-installing the device.

The dummy cartridge is a solid body of metal such as aluminum steel, copper, or preferably brass, or other suitable material such as nylon, fiber glass, wood, rubber, TEFLO, carbon composite material, polymeric material, or even paper composite. The dummy 15 cartridge is shaped to generally conform with that of a live cartridge designed to be used with the particular firearm at hand, or which duplicates the size, shape and dimensions of a live cartridge commercially available. Of course, the dummy cartridge differs from the live cartridge in that the instant invention 20 includes means on the outer surface thereof that resiliently and frictionally engages the walls of the magazine 11 of the gun. In the preferred embodiment such means consists of an O-ring 22 of resilient material seated in an annular groove 23 in the outer

surface of the dummy cartridge. An alternative to this is illustrated in Figure 5 in which the O-ring is replaced by resilient pins 24 radiating outwardly from the outer surface of the dummy cartridge. The pins for example maybe three or more in number, preferably equal spaced about the periphery, and each attached by suitable means such as by a suitable adhesive or by being seated in a recess in the body of the dummy cartridge. The means for frictionally engaging the sidewalls of the bore or magazine resists rotation of the dummy device in the chamber when turning the threaded rod during installing or uninstalling the device. Moreover, the means for frictionally engaging provides a way of identifying the dummy cartridge as such and not a live round, for the pins or O-ring is identifiable by feel and look which is different from that of a live round. Of course, it is contemplated that the cartridge and O-ring of the instant invention could be fabricated from the same material and/or could even be a molded one piece construction, such as a hard rubber bullet.

The dummy cartridge has a threaded bore 25 extending inwardly from one end thereof and at the opposite end there is an annual outwardly projecting rib 26 that engages the end wall of the magazine. As best illustrated in Figure 4, a conical portion 27 tapers toward the threaded portion of the bore and provides means to direct and guide the free end of the elongated rod toward the threaded portion of the threaded bore.

The muzzle end plug 30 is a solid cylindrical body of material such as brass (or other suitable material) having a threaded bore 31 extending inwardly from one end thereof and at the opposite end there is an annular outwardly projecting rib 32 surrounding a circular recess 33. The recess is preferably co-axial with the cylindrical body and has a further substantially smaller pin receiving hole or recess 34 therein that is off-set from the axis of the recess 33. The rib 32 engages the outer end 12 the muzzle 13. The rib 32 has a tapered outer face 36 located outside of the gun barrel. The taper is such that the outer peripheral edge of the rib is a narrow edge that cannot be gripped by pliers, locking pliers known under the trademark VISE-GRIP or the like thereby preventing unauthorized removal of the device.

The elongate rod is threaded into the threaded bore 31 and is anchored by suitable means such as a set screw 38 or jam nut (not shown) or a substance applied to the threads such as for example a product sold under the trademark LOCK-TITE.

A key 50 comprises a body 51 of brass, or other suitable material preferably comprised of metal or plastic, that has at least an end portion 52 that is cylindrical and of such diameter as to project into the recess 33 in close fit relation therewith. Of course it is contemplated that other geometric shapes could be utilized as long as cooperative engagement of the two portions was possible. In the embodiment shown, the portion 52 has a length

corresponding approximately to the depth of the recess 33 and by way of example maybe 80 thousandths of an inch. A pin 54 projects from the end of the body portion 52 and is positioned to project into the recess 34 when the end portion 52 is located in the recess 33. The pin for example maybe a hardened steel roll pin and is offset the same amount as the pin receiving hole 34. Means are provided to rotate the end plug 30 about it's longitudinal axis. A split ring 55 passes through an aperture through the body 51 and provides means for attaching the key to a key chain, ring or the like.

The foregoing detailed description is given primarily for clearness of understanding and no unnecessary limitations are to be understood therefrom, for modifications will become obvious to those skilled in the art based upon more recent disclosures and may be made without departing from the spirit of the invention and scope of the appended claims.